

74. The sampling cartridge of claim **103**, wherein: the draining chamber includes:

- i. a top reservoir and a bottom reservoir, fluid flowing from the top reservoir into the bottom reservoir in the first direction, the top and bottom reservoirs having widths in a second direction perpendicular to the first direction and depths in a third direction perpendicular to the first direction and the second direction;
- ii. an interface between the top and bottom reservoirs in the form of an elongated slot extending in the second direction;

the fluidic chip includes a distribution chamber in communication with the bottom reservoir of the draining chamber, fluid travelling from the draining chamber to the distribution chamber in the first direction, the distribution chamber configured to spread fluid flow from the bottom reservoir in the second direction and in the third direction; and

the fluidic chip includes a plurality of separate microfluidic structures, each comprising a fluidic channel in fluid communication with the distribution chamber via a sample inlet port.

75. The sampling cartridge of claim **103**, wherein each microfluidic structure comprises:

a reagent pad of porous material located within the fluidic channel and having a width substantially similar to the width of the fluidic channel; and

a sensor pad of porous material located within the fluidic channel and downstream from the reagent pad and having a width substantially similar to the width of the fluidic channel, the reagent pad and the sensor pad being separated by a free space diffusion zone,

wherein the sensor pad comprises immobilized target analyte-specific receptors that can bind the target analyte and/or a labelled product of a displacement, competition or sandwich affinity assay.

76. The sampling cartridge of claim **75** wherein the immobilized target analyte-specific receptors of the sensor pad can bind the target analyte and/or a labelled product of a displacement assay.

77. The sampling cartridge of claim **75**, wherein the immobilized target analyte-specific receptors of the sensor pad can bind the target analyte and/or a labelled product of a competition assay.

78. The sampling cartridge of claim **75**, wherein the immobilized target analyte-specific receptors of the sensor pad can bind the target analyte and/or a labelled product of a sandwich affinity assay.

79. The sampling cartridge of claim **77**, wherein the reagent pad comprises releasable target analyte-linker-label conjugates and the immobilized target analyte-specific receptors of the sensor pad can bind the target analyte and/or the target analyte-linker-label conjugates.

80. The sampling cartridge of claim **103**, wherein the draining chamber is configured to separate one or more bubbles from the fluid flowing through the draining chamber.

81. The sampling cartridge of claim **74**, wherein the interface between the top and bottom reservoirs is configured to filter impurity particles from the fluid flowing through the draining chamber.

82. (canceled)

83. The sampling cartridge of claim **75**, wherein the reagent pad and the sensor pad within each microfluidic struc-

ture are separated by a free space diffusion zone having a length in the first direction between 0.5 and 5 mm.

84. The sampling cartridge of claim **103**, wherein each microfluidic structure comprises a fluidic channel having a width between about 1.3 and 5 mm and a depth between about 0.25 and 1 mm and a cross-sectional area of the fluidic channel is between about 0.3 and 5 mm².

85. The sampling cartridge of claim **75**, further comprising an inspection window for inspecting the sensor pad in each microfluidic structure.

86. The sampling cartridge of claim **75**, wherein the fluidic chip further comprises a single top layer that covers the fluidic channels of the plurality of separate microfluidic structures.

87. (canceled)

88. The sampling cartridge of claim **86**, wherein the plurality of separate microfluidic structures are spaced by between about 0.5 and 5 mm.

89. The sampling cartridge of claim **75**, wherein the fluidic chip is arranged in the sampling cartridge such that fluid flows along the fluidic channels of the microfluidic structures in the first direction.

90. The sampling cartridge of claim **75**, wherein the fluidic chip is arranged in the sampling cartridge such that fluid flows along the fluidic channels of the microfluidic structures in the third direction.

91. The sampling cartridge of claim **74**, wherein the depth of the bottom reservoir of the draining chamber in the third direction is between about 0.25 and 2 mm.

92. The sampling cartridge of claim **74**, wherein the depth of the bottom reservoir of the draining chamber in the third direction is substantially the same as a dimension of the distribution chamber of the fluidic chip.

93. The sampling cartridge of claim **74**, wherein the width of the bottom reservoir of the draining chamber in the second direction is substantially the same as a dimension of the distribution chamber of the fluidic chip.

94. The sampling cartridge of claim **103**, wherein the sampling cartridge comprises a swab pressing means.

95. The sampling cartridge of claim **94**, wherein the pressing means comprises a hinged handle, wherein closure of the handle causes an inserted swab to be pressed and a fluid to flow from the swab into the extraction chamber.

96. The sampling cartridge of claim **103**, wherein the sampling cartridge comprises a membrane over the extraction chamber to allow injection of a fluid by a syringe.

97. An analysis system comprising:

the sampling cartridge as defined in claim **103**; and

an optical detection reader comprising a socket to receive at least part of the sampling cartridge, and an optical system for inspecting the sensor pad in each microfluidic structure through the inspection window of the sampling cartridge.

98. (canceled)

99. (canceled)

100. The analysis system of claim **97**, wherein the sampling cartridge includes guiding rails that facilitate its insertion into the optical detection reader.

101. A method comprising flowing a fluid through the sampling cartridge of claim **89** wherein the first direction is in an upright direction.

102. The microfluidic structure of claim **56**, wherein the supporting assembly is held in place via a single or multiple